



# Terrenolide S, a new anti-leishmanial butenolide from the endophytic fungus *Aspergillus terreus*

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## Abstract:

Terrenolide S, a new butenolide derivative (6), together with six known compounds: (22E,24R)-stigmasta-5,7,22-trien-3-ol (1), stigmast-4-ene-3-one (2), stigmasta-4,6,8(14),22-tetraen-3-one (3), terretonin A (4), terretonin (5) and butyrolactone VI (7) have been isolated from the endophytic fungus *Aspergillus terreus* isolated from the roots of *Carthamus lanatus* (Asteraceae). Their structures were established by extensive spectroscopic analyses (1D, 2D NMR and HRESIMS), as well as optical rotation measurement and comparison with literature data. Compound 1 displayed a potent activity towards methicillinresistant *Staphylococcus aureus* (MRSA) and *Cryptococcus neoformans* with IC<sub>50</sub> values of 2.29 and 10.68 μM, respectively. Moreover, 1, 2 and 6 exhibited antileishmanial activity towards *Leishmania donovani* with IC<sub>50</sub> values of 11.24, 15.32 and 27.27 μM, respectively and IC<sub>90</sub> values of 14.68, 40.56 and 167.03 μM, respectively.

## Keywords:

*aspergillus terreus*; terrenolide s; butenolide; stigmasterol derivatives; antimicrobial; antileishmanial; antimalarial; cytotoxic activity

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